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7590 03/16/2009

JAECKLE, FLEISCHMANN & MUGEL, LLP
12 Fountain Plaza, 8th Floor
Buffalo, NY 14202-2922

EXAMINER	
GUZMAN, APRIL S	
ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 03/16/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,355	09/11/2003	Mark F. Kelcourse	17988	7884

TITLE OF INVENTION: APPARATUS, METHODS AND ARTICLES OF MANUFACTURE FOR A MULTI-BAND SWITCH

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	06/16/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

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A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,355	09/11/2003	Mark F. Kelcourse	17988	7884

TITLE OF INVENTION: APPARATUS, METHODS AND ARTICLES OF MANUFACTURE FOR A MULTI-BAND SWITCH

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	06/16/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
GUZMAN, APRIL S	2618	455-078000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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GUZMAN, APRIL S	
ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 03/16/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 872 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 872 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	10/660,355	KELCOURSE, MARK F.	
	Examiner	Art Unit	
	APRIL S. GUZMAN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *02/13/2009*.

2. ☒ The allowed claim(s) is/are *1,3,4,6,7,9-17,19 and 20*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 09/11/03,11/04/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Response to Amendment

The Examiner acknowledges the receipt of the Applicant's amendment filed on 02/13/2009. Claims 2, 5, 8, and 18 have been canceled. **Claims 1, 3-4, 6-7, 9-17, and 19-20** are therefore currently pending in the present application.

Response to Arguments

Claims 1, 3-4, 6-7, 9-13, 17, and 19-20 were previously allowed.

Claim 15 was previously objected to as being dependent upon a rejected base claim, but would have been allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments, filed 02/13/2009, with respect to claims 14 and 16 have been fully considered and are persuasive. The rejection of claims 14 and 16 has been withdrawn. However, upon further consideration, claims 14-16 are now allowable.

Allowable Subject Matter

Claims 1, 3-4, 6-7, 9-17 and 19-20 are allowed.

Consider **claim 1**, the best prior art of record during the examination of the present application, **Gerlach et al. (U.S. Patent # 6,518,855)** in view of **Khabbaz et al. (U.S. Patent 6,351,183),** fail to specifically teach, disclose or suggest a single-die integrated circuit for switching among a plurality of transmission ports and a plurality of receiver ports, comprising: a transmitter switching section having a plurality of transmission ports, the transmitter switching section operable to switch a selected one of the plurality of transmission ports to a transmission

node; and a receiver switching section having a plurality of receiver ports, the receiver switching section operable to switch a selected one of the plurality of receiver ports to the transmission node, *wherein the receiver switching section includes at least two cascaded stages, a first cascaded stage controllable to switch the transmission node to a receiver node, and a second cascaded stage controllable to switch the receiver node to a selected one of the plurality of receiver ports*.

Gerlach teach semiconductor switching elements such as field effect transistors which are integrated on a circuit in the form of a Monolithic Microwave Circuit. The circuit is connected to at least two transmitting apparatuses and at least two receiving apparatuses in which case the transmitters and receivers respectively differ in that they operate on different frequency bands (column 1 lines 41-67 and column 2 lines 20-54). Gerlach also teach a first transmitter which is used for frequency band 1, is connected to antenna 1, the receiver for frequency band 2 is connected to antenna 2. The circuit is constructed monolithically in an integrated manner. The switch 1 is formed by FETS 9 to 12. FETs 9 and 11 as well as 10 and 12, respectively, are working together to connect Tx Band 1 or TX Band 2 with terminal Tx. FETs 9 and 12 are controlled by varying the gate potential, FETs 11 and 10 are controlled by varying the potentials of the source of the drain (column 3 lines 18-62).

Khabbaz teach a switched amplifying device according to an embodiment of the present invention designed to amplify over a 1.8 GHz to 2 GHz frequency band and having two gain stages in a cascade configuration. The dual gain stage embodiment of the switched amplifying device comprises the amplifying FET (8), which in the dual gain stage embodiment is termed a first amplifying FET (8), and a second amplifying FET (108). The first amplifying FET (8)

produces an amplified signal at the drain (9). The switched amplifying device further comprises a second amplifying FET having a gate (111) which is coupled to receive and further amplify the amplified signal to achieve higher gain than in the single gain stage embodiment shown in FIG. 4 of the drawings. The drain (9) of the first amplifying FET (8) is connected to the gate (111) of the second amplifying FET (108) through a matching series capacitor (50) (Figure 8, column 6 lines 55-67 and column 7 lines 1-40).

These teachings clearly differ from the claimed invention, therefore, claim 1 is considered novel and non-obvious over the prior art and therefore is allowed.

Claims 3-4 and 6 depend upon allowable claim 1, therefore, these claims are also allowed.

Consider **claim 7**, the best prior art of record during the examination of the present application, **Gerlach et al. (U.S. Patent # 6,518,855)** in view of **Khabbaz et al. (U.S. Patent 6,351,183),** fail to specifically teach, disclose or suggest a single-die multiband switch for wireless communication, comprising: an antenna port; a plurality of transmitter ports, for each transmitter port a switching topology operable to switch the last said transmitter port to the antenna port; and a plurality of receiver ports, for each receiver port a switching topology operable to switch the last said receiver port to the antenna port; wherein at least one of the switching topologies comprises *a plurality of field effect transistors having their current paths coupled in series between an associated transmission port and the antenna port, a control signal for the at least one switching topology controlling the at least one switching topology to selectively connect or isolate a respective transmitter port from the antenna port.*

Gerlach teach semiconductor switching elements such as field effect transistors which are integrated on a circuit in the form of a Monolithic Microwave Circuit. The circuit is connected to at least two transmitting apparatuses and at least two receiving apparatuses in which case the transmitters and receivers respectively differ in that they operate on different frequency bands (column 1 lines 41-67 and column 2 lines 20-54). Gerlach also teach a first transmitter which is used for frequency band 1, is connected to antenna 1, the receiver for frequency band 2 is connected to antenna 2. The circuit is constructed monolithically in an integrated manner. The switch 1 is formed by FETS 9 to 12. FETs 9 and 11 as well as 10 and 12, respectively, are working together to connect Tx Band 1 or TX Band 2 with terminal Tx. FETs 9 and 12 are controlled by varying the gate potential, FETs 11 and 10 are controlled by varying the potentials of the source of the drain (column 3 lines 18-62).

Khabbaz teach a switched amplifying device according to an embodiment of the present invention designed to amplify over a 1.8 GHz to 2 GHz frequency band and having two gain stages in a cascade configuration. The dual gain stage embodiment of the switched amplifying device comprises the amplifying FET (8), which in the dual gain stage embodiment is termed a first amplifying FET (8), and a second amplifying FET (108). The first amplifying FET (8) produces an amplified signal at the drain (9). The switched amplifying device further comprises a second amplifying FET having a gate (111) which is coupled to receive and further amplify the amplified signal to achieve higher gain than in the single gain stage embodiment shown in FIG. 4 of the drawings. The drain (9) of the first amplifying FET (8) is connected to the gate (111) of the second amplifying FET (108) through a matching series capacitor (50) (Figure 8, column 6 lines 55-67 and column 7 lines 1-40).

These teachings clearly differ from the claimed invention, therefore, claim 7 is considered novel and non-obvious over the prior art and therefore is allowed.

Claims 9-13 depend upon allowable claim 7, therefore, these claims are also allowed.

Consider **claim 14**, the best prior art of record during the examination of the present application, **Gerlach et al. (U.S. Patent # 6,518,855)** in view of **Khabbaz et al. (U.S. Patent 6,351,183),** fail to specifically teach, disclose or suggest a single-die transmitter/receiver integrated switching circuit, comprising: a plurality of transmitter ports; a plurality of receiver ports; at least one antenna port; a plurality of integrated circuit switching elements controllable to connect one of the transmitter ports or one of the receiver ports to the antenna port while isolating the remaining ones of the transmitter and receiver ports from the antenna port, *at least one of the plurality of transmitter ports and the plurality of receiver ports being at least three in number, at least some of the integrated circuit switching elements arranged in cascaded fashion in order to reduce signal insertion loss*.

Gerlach teach semiconductor switching elements such as field effect transistors which are integrated on a circuit in the form of a Monolithic Microwave Circuit. The circuit is connected to at least two transmitting apparatuses and at least two receiving apparatuses in which case the transmitters and receivers respectively differ in that they operate on different frequency bands (column 1 lines 41-67 and column 2 lines 20-54). Gerlach also teach a first transmitter which is used for frequency band 1, is connected to antenna 1, the receiver for frequency band 2 is connected to antenna 2. The circuit is constructed monolithically in an integrated manner. The switch 1 is formed by FETS 9 to 12. FETs 9 and 11 as well as 10 and 12, respectively, are working together to connect Tx Band 1 or TX Band 2 with terminal Tx. FETs 9 and 12 are

controlled by varying the gate potential, FETs 11 and 10 are controlled by varying the potentials of the source of the drain (column 3 lines 18-62).

Khabbaz teach the two FETs 8 and 108 in Figure 8 that are referred to as being in a "cascade configuration" in column 6, line 61 of Khabbaz are arranged so that the current path of the first stage transistor 8 is coupled, through a capacitor 50, to the gate of second stage transistor 108 in order to provide greater amplification (column 6 line 63 - column 7 line 8).

These teachings are different from the claimed invention in which, the term "cascaded" is when the current path of a first stage transistor, e.g. transistor 19, feeds the current path of multiple second stage transistors, e.g. transistors 20 and 22. The gates of all three of these transistors are coupled to a source voltage VLO or VH and one of the output current path terminal (source or drain) of first stage transistor 19 is coupled to the input current path terminal (drain or source) of both of the second stage transistors 20 and 22.

Therefore, claim 14 is considered novel and non-obvious over the prior art and therefore is allowed.

Claims 15-16 depend upon allowable claim 14, therefore, these claims are also allowed.

Consider **claim 17**, the best prior art of record during the examination of the present application, **Gerlach et al. (U.S. Patent # 6,518,855)** in view of **Khabbaz et al. (U.S. Patent 6,351,183),** fail to specifically teach, disclose or suggest a method of switching one of a plurality of transmitters and a plurality of receivers to a transmitter/receiver antenna, comprising the steps of: connecting each transmitter to a respective one of a plurality of transmitter ports formed on a single integrated circuit die; connecting each receiver to a respective one of a plurality of receiver ports formed on the die; controlling a selected one of a plurality of switching topologies

each associated with a respective one of the transmitter and receiver ports to connect a respective selected one of the transmitter and receiver ports to an antenna port formed on the die; controlling other ones of the switching topologies to isolate others of the transmitter and receiver ports from the antenna port; *arranging at least some of the switching topologies in cascaded stages including a first stage coupled to the antenna port and a last stage coupled to a plurality of the transmitter or receiver ports; connecting a selected one of the transmitter or receiver ports to the antenna port by switching on the first stage and switching on a switch associated with the selected one of the transmitter or receiver ports wherein the switch associated with the selected one of the transmitter or receiver ports is a portion of the last stage*; and switching off the remaining switching topologies and other switches in the last stage.

Gerlach teach semiconductor switching elements such as field effect transistors which are integrated on a circuit in the form of a Monolithic Microwave Circuit. The circuit is connected to at least two transmitting apparatuses and at least two receiving apparatuses in which case the transmitters and receivers respectively differ in that they operate on different frequency bands (column 1 lines 41-67 and column 2 lines 20-54). Gerlach also teach a first transmitter which is used for frequency band 1, is connected to antenna 1, the receiver for frequency band 2 is connected to antenna 2. The circuit is constructed monolithically in an integrated manner. The switch 1 is formed by FETS 9 to 12. FETs 9 and 11 as well as 10 and 12, respectively, are working together to connect Tx Band 1 or TX Band 2 with terminal Tx. FETs 9 and 12 are controlled by varying the gate potential, FETs 11 and 10 are controlled by varying the potentials of the source of the drain (column 3 lines 18-62).

Khabbaz teach a switched amplifying device according to an embodiment of the present invention designed to amplify over a 1.8 GHz to 2 GHz frequency band and having two gain stages in a cascade configuration. The dual gain stage embodiment of the switched amplifying device comprises the amplifying FET (8), which in the dual gain stage embodiment is termed a first amplifying FET (8), and a second amplifying FET (108). The first amplifying FET (8) produces an amplified signal at the drain (9). The switched amplifying device further comprises a second amplifying FET having a gate (111) which is coupled to receive and further amplify the amplified signal to achieve higher gain than in the single gain stage embodiment shown in FIG. 4 of the drawings. The drain (9) of the first amplifying FET (8) is connected to the gate (111) of the second amplifying FET (108) through a matching series capacitor (50) (Figure 8, column 6 lines 55-67 and column 7 lines 1-40).

These teachings clearly differ from the claimed invention, therefore, claim 17 is considered novel and non-obvious over the prior art and therefore is allowed.

Claims 19-20 depend upon allowable claim 17, therefore, these claims are also allowed.

Conclusion

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building

401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to April S. Guzman whose telephone number is 571-270-1101. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/April S. Guzman/
Examiner, Art Unit 2618

/Matthew D. Anderson/
Supervisory Patent Examiner, Art Unit 2618